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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BLACKWELL RUDASIL, GWENDOLYN A

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/820,141

Applicant(s)

KRILTZ, UWE

Examiner

Gwendolyn Blackwell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/04; 2/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. Claims 1-35 are pending and examined on the merits.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/787,823. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of copending claim 1 completely encompasses present claim 1.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claim 21 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of copending Application No. 10/914,636. Although the conflicting claims are not identical, they are not patentably distinct from each other because the structure of claim 21 completely encompasses the exemplified structure of copending claim 12.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application no. 2002/0064662, Lingle et al, in view of United States Patent Application Publication no. 2004/005467, Neuman et al, further in view of the article entitled "*Thermally durable sputter-deposited tin oxide films and their applications*", Ebisawa et al.

Applicant's claims 1 and 21

Applicant's claim 1 requires the following structure:

glass substrate/1st dielectric layer/1st tin oxide layer including nitrogen/silicon nitride layer/1st zinc oxide layer/IR reflecting layer/contact layer/2nd zinc oxide layer/another dielectric layer

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wherein the silicon nitride layer is contacting the 1st tin oxide layer, the 1st zinc oxide layer is contacting the silicon nitride layer, the IR reflecting layer is contacting the zinc oxide layer, the contact layer is contacting the IR reflecting layer and the 2nd zinc oxide layer is contacting the contact layer.

Applicant's claim 21 requires the following structure:

glass substrate/1st dielectric layer/tin oxide layer/silicon nitride layer/zinc oxide layer/IR reflecting layer/contact layer/dielectric layer

wherein the silicon nitride layer is contacting the tin oxide layer, the zinc oxide layer is contacting the silicon nitride layer, the IR reflecting layer is contacting the zinc oxide layer, and the contact layer is contacting the IR reflecting layer.

Regarding claims 1 and 21

Lingle et al disclose a heat treatable low-e coated article comprised of a glass substrate with at least one dielectric layer formed on the substrate, a first contact layer, a first IR reflecting layer comprising Ag, a second contact layer, at least one additional dielectric layer, and so forth, (page 2, sections 0027-00390. Between the first IR reflecting layer and the substrate a first layer of tin oxide, followed by a layer of silicon nitride, followed by a layer of zinc oxide can be formed, (page 3, sections 0072-0074). A contact layer is formed on the Ag layer, with a layer of zinc oxide formed on the contact layer which further has a dielectric layer formed on the zinc oxide layer, (page 4, sections 0078-0080). Lingle et al does not specifically disclose an additional dielectric layer formed between the tin oxide layer and the substrate or that the first contact layer is zinc oxide.

Neuman et al disclose a heat treatable coated article comprised of a glass substrate having a multilayer coating formed thereon comprised of zinc oxide inclusive contact layers, (page 2,

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section 0014). It is further disclosed that another dielectric layer such a titanium oxide can be added next to the substrate, (pages 3-4, section 0034).

Ebisawa et al disclose that tin oxide can be deposited with a nitrogen component, (page 307, paragraph 3).

Lingle et al, Neuman et al, and Ebisawa et la disclose analogous inventions related to heat treatable coated articles. It would have been within the skill of one in the art at the time of invention to modify layer structure of Lingle et al with the zinc oxide of Neuman et al in order to protect the IR reflecting layer during heat treatment or other processing.

It would have also been within the skill of one in the art to further modify the Lingle et al coating by inserting a titanium oxide between the substrate and the tin oxide layer in order to increase the neutrality of the glass at high viewing angles such as at 45 and/or 60 degrees, (Neuman, page 4, section 0035), as Lingle et al specifically discloses that "other layer(s) below or above the illustrated coating may also be provided", (Lingle, page 4, section 0082).

It would have further been within the skill of one in the art at the time of invention to further modify the Lingle/Neuman coated article through the addition of nitrogen to the tin oxide film in order to inhibit substrate bending and cracks, (Ebisawa, page 308, paragraph 1).

Regarding claims 2-4, 20, 22, and 25-26

Aluminum can be added to the zinc oxide, (Neuman, page 3, section 0031). The coated article is heat treatable, (Neuman, page 2, section 0014). Titanium oxide can be used as the first dielectric layer next to the substrate, (Neuman, pages 3-4, section 0034).

Regarding claims 5-6, 16, 27, and 35

The upper contact layer can be made of a nickel chrome oxide or other suitable materials, (Neuman, page 4, section 0037). Zinc oxide can be used for the contact wherein the zinc oxide can be doped or undoped with aluminum, (Neuman, page 2, section 0014). A layer of an oxide of

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NiCr, an oxide of Ni, or the like may be added between the zinc oxide layer and the nearest IR reflecting layer, (page 4, section 0037). Tin oxide with a layer of silicon nitride are formed over the upper contact layer, (Neuman, pages 4-5, section 0042).

Regarding claims 7, 17-19, and 28

The silicon nitride layers can be Si-rich with an x/y ratio from 0.76-1.5 having a refractive index of 2.05-2.10, (Neuman, page 4, section 0040). The coated article can be an IG window unit, (Neuman, page 5, section 0044).

Regarding claims 9-10 and 30-31

Monolithically, after heat treatment, the coated article has a most preferred sheet resistance of less than or equal to 2.5, (Neuman, Table 3, section 0047), with a visible light transmission of greater than or equal to 75%, (Neuman, Table 4, section 0049).

Regarding claims 13-15 and 34

The coated article can have an a^* value of within the range of from $-2.0 - 2.0$ before and/or after heat treatment so as to minimize or reduce color change detectable by the human naked eye. While not specifically disclosing that the Δa^* is less than the values as claimed by Applicant, the prior art teaches that the Δa^* can be less than 2.0 and that the a^* value may be the same before and after heat treatment as the range is the same before and after heat treatment, (Lingle, page 2, sections 0016-0017). As such, it is within the skill of one in the art at the time of invention to optimize the a^* before and after heat treatment in order to minimize or reduce the amount of color change that the human naked eye will be able to detect as well as providing a more neutral appearance.

Regarding claims 23-24

Nitrogen can be present in the tin oxide film in an amount ranging from 2.7-8.6, (Ebisawa, page 308, Table 1).

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8. Claims 1, 8, 11-12, 21, 29, and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent no. 5,837,361, Glaser et al in view of United States Patent Application Publication no. 2004/0005467, Neuman et al further in view of the article entitled *"Thermally durable sputter-deposited tin oxide films and their applications"*, Ebisawa et al.

Applicant's claims 1 and 21

The limitations of Applicant's claims 1 and 21 have been set forth above.

Regarding claims 1, 8, 21, and 29

Glaser et al disclose a substrate coated with a stack of thin layers having the following/g structure on a substrate:

lower coating/functional layer/sacrificial/upper coating

wherein the lower coating is comprised of a zinc oxide contacting the functional layer with a dielectric layer located between the substrate and the zinc oxide layer. The functional layer is silver. The sacrificial layer can be a layer of nickel-chromium which is partially or completely oxidized in the final product. The upper coating can be zinc oxide with another dielectric layer formed thereon, (columns 3-4, lines 34-15). Silicon nitride or tin oxide can be placed between the first zinc oxide layer in the lower coating and the substrate, (column 3, lines 43-46). Glaser does not specifically disclose that an additional dielectric layer is formed beneath the tin oxide layer, that tin oxide and silicon nitride is placed beneath the first zinc oxide layer.

Neuman et al disclose a heat treatable coated article comprised of a glass substrate having a multilayer coating formed thereon comprised of zinc oxide inclusive contact layers, (page 2, section 0014). It is further disclosed that another dielectric layer such a titanium oxide can be added next to the substrate, (pages 3-4, section 0034).

Ebisawa et al disclose that tin oxide can be deposited with a nitrogen component, (page 307, paragraph 3).

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Glaser et al, Neuman et al, and Ebisawa et la disclose analogous inventions related to heat treatable coated articles. It would have been within the skill of one in the art at the time of invention to modify layer structure of Glaser et al with the zinc oxide of Neuman et al in order to protect the IR reflecting layer during heat treatment or other processing.

It would have also been within the skill of one in the art to further modify the Glaser et al coating by inserting a titanium oxide between the substrate and the tin oxide layer in order to increase the neutrality of the glass at high viewing angles such as at 45 and/or 60 degrees, (Neuman, page 4, section 0035), as Glaser et al specifically discloses that "the lower coating , comprises at least two different layers made of dielectric material", (Glaser, column 3, lines 29-33).

It would have further been within the skill of one in the art at the time of invention to further modify the Glaser/Neuman coated article through the addition of nitrogen to the tin oxide film in order to inhibit the substrate from bending and cracks, (Ebisawa, page 308, paragraph 1).

Regarding claims 11-12 and 32-33

The coated substrate, which is used in multiple glazing panels, has a U value, which is being held as synonymous with Glaser's heat transfer K coefficient, of approximately 1.1 W/(m²/K), (column 4, lines 34-45).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 5:30 am - 4:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gwendolyn Blackwell
Examiner
Art Unit 1775

gab


DEBORAH JONES
SUPERVISORY PATENT EXAMINER